


COPIED CEF

DATE: 10-28-04

"VERIFY THAT THIS IS
THE CORRECT VERSION
BEFORE USE"

1	DELETED REFERENCE TO "CLEANING" IN SECTION 1, SCOPE, AND IN SECTION 3, GENERAL; IN SECTION 2, APPLICABLE PUBLICATIONS, REPLACED MILITARY STANDARD "MIL-H-6875" WITH "AMS-H-6875" AND ADDED SAE AEROSPACE RECOMMENDED PRACTICE "ARP901"; REPLACED "MTF" WITH "SSC" THROUGHOUT THE DRAWING; IN SECTION 4, REWROTE FIRST SENTENCE TO DEFINE TYPES OF STAINLESS STEEL REQUIRED (REV. 0 ONLY SPECIFIED "STAINLESS STEEL"), AND ADDED THE SECOND SENTENCE WHICH DEFINES THE 'PIECE PARTS INCLUDED IN THE ELEMENT MATERIALS OF CONSTRUCTION'; IN SECTION 14, REPORTS, ADDED "(ELECTRONIC COPIES PREFERRED)". DIRECT DRAWING CHANGE PER SWR XJCRW50100. <i>T.D.S. 7/29/04 D.P.D. 8/17/04</i> (RES T2-3304)		ISSUED/CEF OCT 28 2004 <i>9/19/04 SDM</i>		
	SYM	ZONE	DESCRIPTION	DATE APPROVED	
REVISIONS					
SIGNATURE		DATE	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION		
DRAWN K. SWANSON		11/30/67	 JOHN C. STENNIS SPACE CENTER SSC, MS 39529-6000		
CHECKED T.I. BROOKS		1/25/68			
ENGINEER D.A. DECERBO		2/23/68			
ISSUED ISSUED/CEF		3/18/68			
SUBMITTED L. TERRY		2/26/68			
NASA SAFETY					
CADD CONTROLLED DRAWING CADD P/N: SCD\54B00\GG01R1\SH11		APPROVED R.G. SMITH	2/29/68	SIZE B DWG. NO. 54B00-GG01 AUTHORITY	REV. 1 SHEET 1 OF 3

ELEMENT, FILTER, GAS
GENERAL

1. SCOPE:

THIS DRAWING COVERS THE DESIGN, FABRICATION AND TESTING OF HIGH PRESSURE FILTER ELEMENTS.

DESIGN REQUIREMENTS2. APPLICABLE PUBLICATIONS:ASME BOILER AND PRESSURE VESSEL CODE

SECTION VIII RULES FOR CONSTRUCTION OF PRESSURE VESSELS
SECTION IX QUALIFICATION STANDARD FOR WELDING AND BRAZING PROCEDURES, WELDERS, BRAZERS, AND WELDING AND BRAZING OPERATORS

SAE AEROSPACE MATERIAL SPECIFICATIONS

AMS-H-6875 HEAT TREATMENT OF STEEL RAW MATERIALS

SAE AEROSPACE RECOMMENDED PRACTICE

ARP901 BUBBLE-POINT TEST METHOD

3. GENERAL:

THE FILTER ELEMENTS SHALL BE DESIGNED, FABRICATED AND TESTED IN ACCORDANCE WITH THE DATA STATED HEREIN. ANY ADDITIONAL MEASURES NECESSARY TO PROVIDE FILTER ELEMENTS WHICH WILL SATISFACTORILY PASS THE SPECIFIED TESTS SHALL BE THE MANUFACTURER'S RESPONSIBILITY. THIS SSC DRAWING SHALL GOVERN AND TAKE PREFERENCE WHERE IT MAY DEPART OR CONFLICT WITH PROVISIONS OF REFERENCED DOCUMENTS.

4. MATERIAL:

UNLESS SPECIFIED OTHERWISE BY THE FILTER ASSEMBLY DRAWINGS, FILTER ELEMENT MATERIALS OF CONSTRUCTION SHALL BE 304, 304L, 316, 316L, 347, DUAL RATED 304/304L, OR DUAL RATED 316/316L STAINLESS STEEL. THE ELEMENT MATERIALS OF CONSTRUCTION ARE HEREIN DEFINED AS ALL MATERIALS USED FOR PIECE PARTS ASSEMBLED TO CONSTRUCT THE ELEMENT, INCLUDING FILTRATION AND SUPPORTING WIRE CLOTH, SUPPORTING STRUCTURE OR MANDREL, SHROUD, END CAPS AND FITTINGS, AND FASTENERS. MATERIALS REQUIRED SHALL BE NEW AND CHOSEN FOR OPTIMUM PERFORMANCE.

5. PRESSURE DROP:

THE PRESSURE DROP PERMISSIBLE FOR THE FILTER ELEMENT SHALL NOT EXCEED THE VALUES SPECIFIED IN THE FILTER ASSEMBLY DRAWING. THE FILTER ELEMENT SHALL BE DESIGNED SO THAT WHEN 50% OF THE OPENINGS ARE CLOSED/PLUGGED, THE TOTAL PRESSURE DROP (ELEMENT AND HOUSING) DOES NOT EXCEED 125% OF THE CLEAN PRESSURE DROP.

6. COLLAPSING PRESSURE:

THE FILTER ELEMENT SHALL BE DESIGNED TO ALLOW FULL OPERATING PRESSURE ON A PLUGGED ELEMENT WITHOUT COLLAPSING THE ELEMENT. DEFORMATION OF THE FILTER MEDIA IS PERMISSABLE PROVIDING THE ABSOLUTE FILTRATION RATING OF THE FILTER MEDIA IS NOT REDUCED.

7. INNERSEAL:

THE INNERSEAL BETWEEN THE FILTER BODIES AND THE FILTER ELEMENTS SHALL BE LEAKTIGHT AT A DIFFERENTIAL PRESSURE NO LESS THAN THE COLLAPSE PRESSURE RATING OF THE ELEMENT.

8. ELEMENT MEDIA:

THE FILTER MEDIA SHALL BE WOVEN WIRE CLOTH AND SHALL BE COMPLETELY WELDED IN PLACE. PLEATED WIRE CLOTH SHALL BE IN TWO LAYERS: THE INNER LAYER SHALL BE COARSE MESH AND THE OUTER LAYER SHALL BE FINE MESH AS REQUIRED TO ACHIEVE THE SPECIFIED DEGREES OF FILTRATION. FLATTENING OR WIDENING OF WIRE CLOTH TO ACHIEVE THE SPECIFIED MICRON RATING, AND PATCHING OF THE FILTER MEDIA SHALL NOT BE PERMITTED. DIRECT FLOW IMPINGEMENT AGAINST THE MEDIA SHALL NOT BE AN ACCEPTABLE DESIGN. THE WIRE CLOTH ELEMENT SHALL BE RE-CLEANABLE TO A MINIMUM OF 95% OF ITS ORIGINAL CAPACITY. THE FILTER ELEMENT SHALL BE SO DESIGNED THAT THE WIRE CLOTH MAY BE REMOVED AND REPLACED WITH NEW MATERIAL.

9. HEAT TREATMENT:

ALL STAINLESS STEEL MATERIALS SHALL BE IN THE ANNEALED CONDITION PRIOR TO FABRICATION. PARTS THAT ARE COLD WORKED SHALL BE ANNEALED AFTER FABRICATION. IF WORK HARDENED PARTS ARE TO BE WELDED, THE ANNEALING SHALL BE PERFORMED BEFORE WELDING. HEAT TREATMENT SHALL BE IN ACCORDANCE WITH AMS-H-6875.

10. WELDING:

ALL WELDING SHALL BE PERFORMED AND INSPECTED IN ACCORDANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE, SECTIONS VIII & IX. MANUFACTURER SHALL CERTIFY THAT THE WELDS ARE WITHIN REQUIRED SPECIFICATIONS.

TESTING11. WITNESS OF TEST:

PRIOR TO PURCHASER'S ACCEPTANCE THE FILTER ELEMENTS SHALL BE SUBJECTED TO THE TESTS LISTED HEREIN. THE PURCHASER'S AUTHORIZED REPRESENTATIVE SHALL WITNESS ALL THE TESTS, IF SPECIFIED ON THE PURCHASE ORDER. THE MANUFACTURER SHALL NOTIFY THE PURCHASER A MINIMUM OF 72 HOURS PRIOR TO A SCHEDULED TEST SEQUENCE.

12. BUBBLE TEST:

EACH FILTER ELEMENT SHALL BE SUBJECTED TO A BUBBLE TEST TO DETERMINE THE SOUNDNESS OF THE WELDS AND TO CERTIFY THE ABSOLUTE AND NOMINAL PORE SIZE RATING OF THE FILTER MEDIA. THE BUBBLE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PROCEDURE ARP901 OR THE MANUFACTURER'S PROCEDURE AS APPROVED BY THE PURCHASER PRIOR TO TESTING.

13. COLLAPSING PRESSURE TEST:

WHEN SPECIFIED ON THE PURCHASE ORDER, A MINIMUM OF ONE FILTER ELEMENT OF EACH DESIGN AND/OR SIZE SHALL BE SUBJECTED TO A TESTING PROCEDURE TO DEMONSTRATE THAT THE ELEMENT IN A PLUGGED CONDITION CAN WITHSTAND FULL OPERATING PRESSURE. THE TEST PROCEDURE SHALL BE DEVISED BY THE MANUFACTURER AND APPROVED BY THE PURCHASER PRIOR TO TESTING. THIS TEST MAY BE WAIVED IN WRITING IF THE MANUFACTURER CAN OTHERWISE SATISFACTORILY DEMONSTRATE THAT THE ELEMENT CAN WITHSTAND A DIFFERENTIAL PRESSURE EQUAL TO THE OPERATING PRESSURE.

14. REPORTS:

THE MANUFACTURER SHALL FURNISH TWO CERTIFIED, REPRODUCIBLE COPIES (ELECTRONIC COPIES PREFERRED) OF THE FOLLOWING REPORTS:

BUBBLE TESTS
COLLAPSING PRESSURE TEST